



## Taylor Diagram Software Tutorial

The [Taylor diagram](#) is a polar coordinate chart that links the angular position with the inverse cosine of the correlation coefficient, R. In this diagram, a correlation coefficient of 0 is depicted as being at 90°, while a correlation coefficient of 1 is at 0°. The distance along the radial axis from the origin corresponds to the normalized standard deviation, represented as  $\sigma_M$ . The reference point is established by employing statistics derived from a comparison of the reference dataset with itself (as defined in the formula for normalized standard deviation). In the context of the Normalized Taylor Diagram, this reference point is depicted in polar coordinates as (1.0, 0.0). However, when employing the Classic Taylor Diagram, it is represented as ( $\sigma_o$ , 0.0), with  $\sigma_o$  denoting the standard deviation of the observation data.

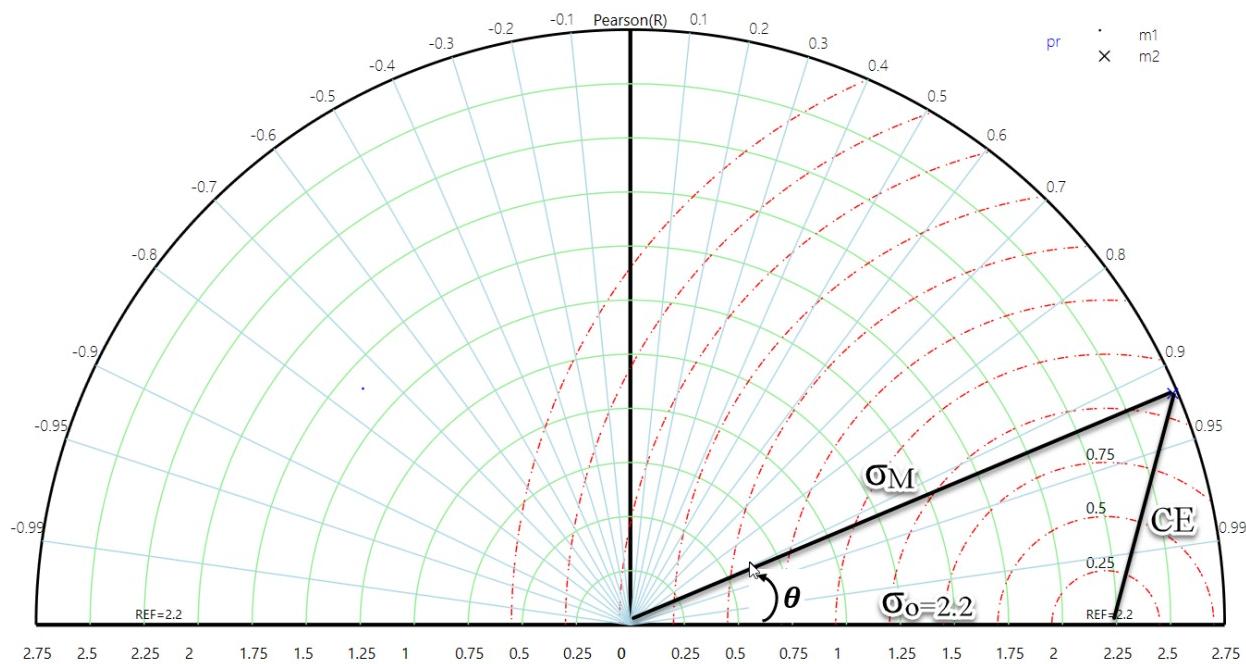
To describe the diagram below:

In this diagram:

- The green circles indicate the standard deviation of the model( $\sigma_M$ ).
- The red circles represent the centered Root Mean Square Error (CE).
- The black circle axis corresponds to the Pearson correlation coefficient (R).
- The REF point on the horizontal axis corresponds to the standard deviation of the observation( $\sigma_o$ ).



It's important to note that if the R-value is positive, the data point will be positioned in the right quarter circle. Conversely, if the R-value is negative, the data point will be situated in the left quarter circle.



## ▪ Buy a license and Installing

The installation procedure for this tool is straightforward and trouble-free. Once you've obtained a license, you'll gain access to a tool called "ID Finder." Share your unique ID with us, and in response, you'll receive the installer for the registered version. Running the installer will seamlessly install the tool without needing an additional activation key. Once installed, you can effortlessly access the device by clicking on the desktop shortcut or running "Taylor Diagram Software" in your computer's program list.



## How to Use it

First, you have two options to input data into the Taylor Diagram Software:

### 1. Input Ratio and Correlation Values:

- Calculate the standard deviation of the observation and each model.
- Compute the Pearson correlation between each model and the observation data.
- The Ratio is obtained by dividing the standard deviation of the model by the standard deviation of the observation ( $\sigma_M/\sigma_O$ ).

### 2. Input Raw Data:

- The tool will automatically calculate all necessary parameters.
- We'll guide you on how to utilize raw data to create the Taylor Diagram.

Additionally, in the midst of this process, we'll explain how to use option 1 if needed.

## Input Data Tab

When you initiate the tool, you'll encounter a window similar to the one depicted in the figure below. Here are the steps to follow:



1. Enter the name of the variable you're working with and select your preferred color for that variable.
2. If you're inputting the first variable, provide a list of models. This list will be used for both the first variable and any subsequent variables.
3. In the model's list, specify the Marker Type (choose from ten available shapes) and Marker Size.
4. If you intend to input data as per option 1, you should enter the Ratio and Pearson correlation values. However, if you prefer to use option 2, simply input zero for these values, and the tool will automatically populate them with zeros.
5. If you wish to input raw data, please tick the "Use Raw Data" checkbox, and on the right-hand side, populate the list with your data.
- 6- You can now save the Var-Model configuration and repeat steps 1-6 if you want to enter another variable.



The screenshot shows the 'Taylor Diagram Software' application window. On the left, the 'Input Data' tab is active. It features a 'Variables' section with a 'Name Of Variable' input field containing 'pr'. A message box says 'done! The pr is saved by 6 models.' Below it is a 'Models' table with six rows (m1 to m6) and columns for Name, Marker Type, Marker Size, Ratio Value, and Correlation Value. A note says 'Enter model if this is first variable'. A red callout box points to the 'Ratio Value' column with the text 'If you are using raw data enter zero for all Ratio and Corr'. At the bottom of the 'Variables' section are 'Add Row' and 'Remove Row' buttons, and a checked checkbox 'Use Raw Data'. On the right, the 'Raw Data' tab is open, displaying a table of data with columns m1 through m6 and Observation. A red callout box points to the 'Use Raw Data' checkbox with the text 'If you want to use raw data Check this'. A 'Save Var-Model' button is also visible.

## Taylor Diagram Tab

In this tab, you have the option to conveniently choose the line color and line type for STD (Standard Deviation), RMSE (Root Mean Square Error), and Pearson lines. It's worth noting that you can opt for a transparent color for STD and Pearson lines if you prefer not to display these lines. Additionally, when selecting the line type, you can choose three segments for each line, and the tool will automatically replicate this pattern.

The default **value** for the step intervals in the vertical and horizontal axes, as well as for the RMSE circles, are set at 0.25. However, you have the flexibility to



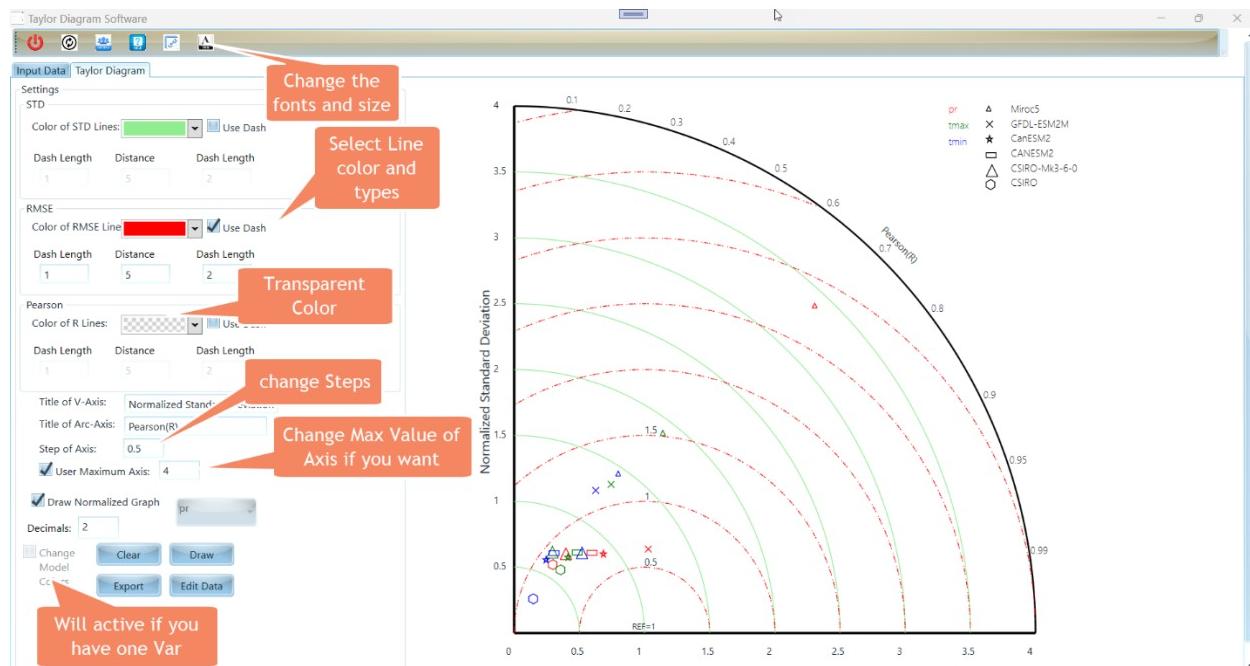
modify these values. This customization can prove to be highly beneficial,

particularly when you prefer not to utilize the Normalized Taylor Diagram.

By default, the vertical and horizontal axes extend to the maximum value of your

data. However, if you wish to adjust these axes, you can enable the "Use

Maximum Axis" checkbox and input your desired value.



If you are working with a single variable and want to assign different colors to

each model, you can activate this feature by checking the "Change Model Color"

checkbox and specifying the colors for each model. Please note that this option is

available when you have only one variable.



You can edit your data by clicking the "Edit Data" button. Remember to save your data and redraw the chart to apply your changes.

If you wish to modify the font family and text size on the axis, you can do so by clicking the corresponding icon in the top bar. This action will open a window that allows you to make the desired adjustments.

You can now create the Taylor Diagram and save it by clicking the "Export" button. We recommend selecting the "Maintain Aspect Ratio" option in the Export window. Additionally, you have the flexibility to adjust the DPI (Dots Per Inch) to your preferred values.

It's important to be aware that if you have negative values for the Pearson correlation of your models, the tool will prompt you in the first tab to multiply them by -1(not recommended). However, if you choose not to do so by clicking "No", the tool will draw the data on a Semicircle Diagram (recommended for negative values) while selecting "Yes" will result in it being drawn on a quarter circle.